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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/534,812	03/24/2000	Shunpei Yamazaki	SEL 169	2789

7590 04/05/2005

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EXAMINER
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NGUYEN, KEVIN M

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/534,812

**Applicant(s)**

YAMAZAKI

**Examiner**

Kevin M. Nguyen

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 31-48, 80, 81, 92-95, 106, 107 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,49,51,53,55-79,82-91 and 96-105 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/02/2005</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Request for Continued Examination*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. the applicant's submission filed on 11/09/2004 has been entered. An action on the RCE follows:

2. It is noted that the applicant's election filed on 3/4/2002 without traverse of species II, as illustrated in figure 22 and species VII as illustrated in figure 27 that draw to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 (previously present), and draw to claims 75-79, 84-91, 96-105 (newly added).

However, the examiner does believe that new claims 80-83, 92-95, 106, 107 are not found in species II and species VII.

Therefore, previous claims 31-48, and new claims 80-83, 92-95, 106, 107 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected species I, III-VI, VIII-XV.

3. This application contains claims 31-48, 80-83, 92-95, 106, 107 drawn to an invention nonelected without traverse filed on 3/4/2002. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

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Applicants elected species II and species VII draw to claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74, and claims 75-79, 84-91, 96-105 are entered for examination. An action based on the previously election and RCE follows.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent No. 6,753,854. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to combine the claimed limitation "time gradation" or "time ratio gray scale" and the claimed limitation "forming an image for one frame comprising  $2^{m-n}$  subframe" (col. 34, lines 24-28 of claim 1) of the Koyama's '854 with Nakai et al and Sharp et al at the paragraphs 7-19 below.

6. Claims 75-79, 84-91, 96-105 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of U.S. Patent

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No. 6,590,581 in view of claims of U.S. Patent No. 6,753,854. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to combine the claimed limitations "a D/A converter circuit for converting said n-bit digital video data into analog video data, and for outputting said analog video data to said source driver" (col. 34, lines 5-7 of claim 1) of Koyama's '581 and the claimed limitation "time gradation" or "time ratio gray scale" with the claimed limitation "forming an image for one frame comprising  $2^{m-n}$  subframe" (col. 34, lines 24-28 of claim 1) of Koyama's '854.

7. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Koyama (US 6,753,854) in view of Nakai et al (previously cited).

8. As to claims 1, 57, 58, Koyama et al teach an active matrix liquid crystal display device TFT-LCD associated with a method, the device comprising:

A gate driver, a source driver, an opposing substrate and electrode (claim 1), a gray-level control circuit (claim 1) controls m-bit input to a n-bit output, as satisfying the condition (m-n) bit as information for time ratio gray scale, and  $m > n$  (claim 1). Koyama et al further teach the display device performs voltage gradation display and time gradation display at the same time (claim 1).

Koyama et al teach all of the claimed limitations except for "optically compensated mode (OCB mode).

However, Nakai et al teach an OCB mode liquid crystal may also use arbitrary, and any type to LCD (col. 16, line 65 through col. 17, line 9).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace Koyama's liquid crystal molecules with an OCB mode liquid crystal, in view of the teaching in the Nakai's reference, because this would improve the quality of the image being displayed, while saving power consumption (col. 13, lines 1-6 of Nakai et al).

9. As to claims 3, 5, Koyama et al teach an active matrix liquid crystal display device TFT-LCD associated with a method, the device comprising:

A gate driver, a source driver, an opposing substrate and electrode (claim 1), a gray-level control circuit (claim 1) controls m-bit input to a n-bit output, as satisfying the condition (m-n) bit as information for time ratio gray scale, and  $m > n$  (claim 1). Koyama et al further teach an image for one-frame is formed by displaying  $2^{m-n}$  pieces of subframes by the n-bit digital data (claim 1).

Koyama et al teach all of the claimed limitations except for "optically compensated mode (OCB mode).

However, Nakai et al teach an OCB mode liquid crystal may also use arbitrary, and any type to LCD (col. 16, line 65 through col. 17, line 9).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace Koyama's liquid crystal molecules with an OCB mode liquid crystal, in view of the teaching in the Nakai's reference, because this would improve the

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quality of the image being displayed, while saving power consumption (col. 13, lines 1-6 of Nakai et al).

10. As to claims 7, 9, 11, 13, 15, 17, Koyama et al '854 teach the positive number  $m$  is 10 and 12 and the positive number  $n$  is 2 and 4 because  $m > n$  and ( $m$  and  $n$  are integer and even numbers, claim 1).

11. As to claims 59-61, 63, 64, Koyama et al teach a TFT-LCD panel (201-1-4, fig. 3) which includes a liquid crystal cell  $C_{LC}$  (claim 1) on the substrate coupling to an opposing common terminal (claim 1).

12. As to claims 49, 65, Koyama et al teach electronic imaging applications include a laptop computer (claim 9).

13. As to claims 69-74, Koyama et al teach the display device performs voltage gradation display and time gradation display at the same time (claim 1) that defined "a display gray scale level is obtained by totaling gray scale voltage levels in sub-frame terms of one frame and then averaging totaled gray scale voltage levels by said time ratio gray scale."

14. Claims 55, 56, 62, 68, 72 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of Koyama et al (US 6,753,854) in view of Sharp et al (US 6,049,367).

15. As to claim 55, Koyama et al '854 teach an active matrix liquid crystal display device TFT-LCD associated with a method, the device comprising:

A gate driver, a source driver, an opposing substrate and electrode (claim 1), a gray-level control circuit (claim 1) controls  $m$ -bit input to a  $n$ -bit output, as satisfying the

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condition (m-n) bit as information for time ratio gray scale, and  $m > n$  (claim 1). Koyama et al further teach the display device performs voltage gradation display and time gradation display at the same time (claim 1).

Koyama et al '854 teach all of the claimed limitations except for "a pi-cell structure."

However, Sharp et al teach a pi-cell structure (col. 30, line 40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to replace Koyama's LCD molecules with the pi-cell structure, in view of the teaching in the Sharp's reference because this would provide reduced flicker, increase brightness as taught by Sharp et al (col. 27, lines 4-10).

16. As to claim 56, Sharp et al teaches OCB mode (col. 30, line 36).

17. As to claims 19, 21, 23, 25, 27 and 29, Koyama et al '854 teach a rear projector and a front projector comprise three liquid crystal display devices (claims 3 and 4).

18. As to claim 62, Koyama et al '854 teach a TFT-LCD panel (claim 1) which includes a liquid crystal cell  $C_{LC}$  (claim 1) on the substrate coupling to an opposing common terminal (claim 1).

19. As to claims 49, 51, 53, 65-68, Koyama et al '854 teach electronic imaging applications include a laptop computer (claim 9).

### ***Response to Arguments***

20. Applicant argues features in the claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 49, 51, 53, 55-74, 75-79, 84-91, 96-105 that are newly recited. Thus, new grounds of rejection have been used. See the rejection above.

**Conclusion**

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Nguyen  
Patent Examiner  
Art Unit 2674

KMN  
February 1st, 2005

  
**XIAO WU**  
**PRIMARY EXAMINER**